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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/032,923 | 12/28/2001 | Peter Thomas Camble | 30014513-1 | 8030 |

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| EXAMINER | |
|---|---|
| HOSSAIN, TANIM M | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2145 | |

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/032,923 | CAMBLE ET AL. | |
| | Examiner | Art Unit | |
| | Tanim Hossain | 2145 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/6/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, 5, 7, 8, 9, and 10 are rejected under 35 U.S.C. 102 (b) as being anticipated by Isfeld (U.S. 5,802,278).

As per claim 1, Isfeld teaches a method for providing a peripheral device virtual functionality overlay for a data library, said method comprising: intercepting commands to a library data transfer element within a bridge disposed between a command initiator and said library (column 9, lines 24-27); passing through commands that can be carried out by said data transfer element to said data transfer element (9; 28-42); and executing, with said bridge, commands addressed to said data transfer element that cannot be carried out by said data transfer element (9; 28-42).

As per claim 3, Isfeld teaches the method of claim 1 further comprising: responding to said initiator as a data transfer element capable of carrying out said command (9; 28-42).

As per claim 4, Isfeld teaches the method of claim 1 further comprising: comparing a command initiator's unique host device identifier to a list of unique host device identifiers authorized to issue commands to said data transfer element (8; 30-56).

As per claim 5, Isfeld teaches the method of claim 4 further comprising: maintaining said list of unique host device identifiers in said bridge (45; 49-54).

As per claim 7, Isfeld teaches the method of claim 4 wherein said unique host device identifiers are Internet small computer systems interface names (9; 28-42).

As per claim 8, Isfeld teaches the method of claim 1 further comprising: determining which data transfer element in said library said command is directed to by using a look up table maintained on said bridge (column 10, line 62 – column 11, line 6; column 45, lines 49-54).

As per claim 9, Isfeld teaches the method of claim 8 wherein said determining step is carried out at least in part based on a unique host device identifier associated with said initiator (9; 28-42, 45; 49-54).

As per claim 10, Isfeld teaches the method of claim 1 wherein said commands that cannot be carried out by said data transfer element include at least one command from the group of commands consisting of: data mover commands, error recovery commands, caching commands, error logging, diagnostic logging, error management, diagnostic management, data compression commands, data encryption commands, and provision of statistics (9; 28-42).

## *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 6, and 11-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld in view of Nolan (U.S. 6,446,141).

As per claim 2, Isfeld teaches the method of claim 1, but does not specifically teach the partitioning of the library. Nolan teaches the partitioning of a library in a SAN (Nolan: 5; 44-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the partitioning of a library as taught by Nolan in the system of Isfeld. The motivation for doing so lies in the fact that having a partitioned computer library would provide limited access for certain users, where the library can be shared among these users, without these users overlapping into other users' possessions. Both inventions are from the same field of endeavor, namely the efficient computer execution of commands.

As per claim 6, Isfeld-Nolan teaches the method of claim 4 wherein said unique host device identifiers are fiber channel world wide names (Nolan: 7; 1-20).

As per claim 11, Isfeld-Nolan teaches the method of claim 1 wherein said initiator is a host connected to a storage area network wherein said storage area network is comprised at least in part of said data library (Nolan: 6; 64 – 7; 20).

As per claim 12, Isfeld-Nolan teaches a peripheral device virtual functionality overlay system for a partitioned data library, said overlay system comprising: a lookup table that indicates unique host device identifiers authorized to access each of said data transfer elements of said library (Isfeld: 44; 54-58, 45; 49-54); and a bridge disposed between a storage area network and said partitioned data library, wherein said bridge comprises firmware that uses said lookup table to determine whether a host initiating commands directed to a data transfer element

of said library is authorized to issue commands to said data transfer element, wherein said bridge firmware passes through to said data transfer element authorized commands that can be carried out by said data transfer element and wherein said bridge firmware intercepts and executes commands directed to said data transfer element that cannot be carried out by said data transfer element (Nolan: 6; 64 – 7; 20, Isfeld: 45; 49-54).

As per claim 13, Isfeld-Nolan teaches the system of claim 12 wherein said bridge responds to a host initiating a command that cannot be carried out by said data transfer element as a data transfer element capable of carrying out last said command (Isfeld: 9; 28-42).

As per claim 14, Isfeld-Nolan teaches the system of claim 12 wherein said unique host device identifiers are fiber channel world wide names (Nolan: 7; 1-20).

As per claim 15, Isfeld-Nolan teaches the system of claim 12 wherein said unique host device identifiers are internet small computer systems interface names (Isfeld: 7; 36-54, 8; 30-56).

As per claim 16, Isfeld-Nolan teaches the system of claim 12 wherein an identity of said data transfer element is determined from said lookup table at least in part based on said unique host device identifier associated with said host (Isfeld: 8; 30-56, 45; 49-54).

As per claim 17, Isfeld-Nolan teaches the system of claim 12 wherein said commands that cannot be carried out by said data transfer element include at least one command from the group of commands consisting of: data mover commands, error recovery commands, caching commands, error logging, diagnostic logging, error management, diagnostic management, data compression commands, data encryption commands, and provision of statistics (Isfeld: 8; 30-56, 45; 49-54).

As per claim 18, Isfeld-Nolan teaches a partitioned storage area network with an attached data library, said network comprising: a data storage array divided into partitions; said library comprising: a plurality of library partitions corresponding to said array partitions (Nolan: 5; 44-50); a plurality of data transfer elements each of said data transfer elements assigned to one of said library partitions (Nolan: 5, 40-50); a plurality of data storage element slots, each of said slots assigned to one of said library partitions; and a library controller that defines a virtual controller for each of said library partitions, said virtual controllers directing movement of data storage media to and from slots assigned to a same of said partitions and to and from data transfer elements assigned to a same of said partitions, said slots and said data transfer elements assigned to a same of said partitions (Isfeld: 9; 28-42); and at least one bridge disposed between said array and said library, wherein said bridge passes through authorized commands that can be carried out by one of said data transfer elements to said one data transfer element and wherein said bridge intercepts commands directed to said one data transfer element that cannot be carried out by said one data transfer element and executes said commands that cannot be carried out by said one data transfer element (Isfeld: 9; 28-42).

As per claim 19, Isfeld-Nolan teaches the network of claim 18 wherein said bridge comprising a lookup table that indicates unique host device identifiers authorized to access each of said data transfer elements of said library (Isfeld: 45; 49-54).

As per claim 20, Isfeld-Nolan teaches the network of claim 19 wherein said unique host device identifiers are fiber channel world wide names (Nolan: 7; 1-20).

As per claim 21, Isfeld-Nolan teaches the network of claim 19 wherein said unique host device identifiers are internet small computer systems interface names (Isfeld: 9; 28-42, 7; 36-54).

As per claim 22, Isfeld-Nolan teaches the network of claim 19 wherein an identity of said data transfer element is determined from said lookup table at least in part based on said unique host device identifier associated with said host (Isfeld: 9; 28-42, 45; 49-54).

As per claim 23, Isfeld-Nolan teaches the network of claim 18 wherein said bridge responds to a host initiating a command that cannot be carried out by said one data transfer element as a data transfer element capable of carrying out last said command (Isfeld: 9; 28-42).

As per claim 24, Isfeld-Nolan teaches the network of claim 18 wherein said commands that cannot be carried out by said data transfer element include at least one command from the group of commands consisting of: data mover commands, error recovery commands, caching commands, error logging, diagnostic logging, error management, diagnostic management, data compression commands, data encryption commands, and provision of statistics (Isfeld: 9; 28-42).

As per claim 25, Isfeld-Nolan teaches the network of claim 18 wherein data mover interconnectivity extends between said array and said library, via said at least one bridge, and said data mover interconnectivity is partitioned and assigned to said corresponding library and array partitions (Isfeld: 9; 28-42, Nolan: 5; 40-50, 45; 49-54).

As per claim 26, Isfeld-Nolan teaches the network of claim 18 wherein said at least one bridge is a fiber channel-to small computer networks interface bridge (Nolan: 7; 1-20).

***Response to Arguments***

Applicant's arguments filed on June 6, 2005 have fully been considered but are not persuasive.

a. Regarding independent claim 1, Isfeld's system is a bridge architecture and routing system, which absolutely constitutes a method for providing a peripheral device virtual functionality overlay. As for the discussion of a data library, the abstract discusses the use of a central network shared memory resource, which constitutes the data library. In column 1, lines 13-20, Isfeld discusses communication between the network devices and executing functions, which inherently constitutes the interception of commands. The network devices are also connected by means of a bridge (column 3, lines 12-50), which is disposed between the entity creating the commands, and the receiving entity, which constitutes a data library. Discussion regarding the passing through of commands inherent in the system for Isfeld's invention to have any utility is discussed further in column 2, lines 40-59. In addition, Isfeld teaches the use of a bridge router, which by function, switches protocols as a result of communicational expediency. Therefore, by switching into an appropriate protocol, Isfeld's bridge executes the commands that could not be executed by a data transfer element before the switch was made. This sufficiently covers the claim limitations. See also column 2, lines 60-64.

b. Applicant asserts that no teaching is made of a lookup table that indicates unique host device identifiers authorized to access data transfer elements. In view of paragraphs 465-469 in Isfeld, the contrary is the case. Isfeld teaches the use of a routing table to indicate next hop information, or the data transfer element to which the packets will be routed. Next hop

information relies on the use of unique device identifiers, embodied by IP addresses. Because data transfer elements are manipulated in this way, the devices are inherently authorized to access the data transfer elements.

c. The use of firmware is inherent by the nature of the invention, which is a bridge within computer architecture. This bridge also passes through authorized commands that may be carried out by data transfer elements, as discussed above. The combination of Isfeld-Nolan teaches the execution of commands that cannot be carried out by the data transfer element. As discussed above, Isfeld uses the bridge to switch protocols to an appropriate one, which therefore constitutes that there exists a command that cannot be carried out by the data transfer element.

d. In paragraph 19 of the summary of Nolan's invention, the use of a data storage array divided into partitions is discussed. As mentioned previously, the data storage array includes support for partitioned data storage.

e. The very correspondence of a computer to a server, for example, or any device to the disk array constitutes the assignment of data transfer elements to data library partitions. Nolan teaches this component throughout the reference. The corresponding of library partitions to array partitions is inherent, as any storage device constitutes a library of data.

f. Applicant asserts that controlling of packet movement with instructions as taught by Isfeld does not constitute the controlling of data movement to and from slots and data transfer elements in a partitioned data library. Isfeld teaches the movement of packets between networks using a bridge, which constitutes the movement of data between data transfer elements. Nolan teaches the data movement between slots in a partitioned data library, which also constitutes movement control (abstract; paragraph 19 of the summary). The motivation to combine

teachings has been discussed previously. To reiterate, the use of a data library is taught in both inventions.

g. Motivation to combine teachings exists because of the very nature of Nolan's invention. Nolan's invention teaches the existence of a disk array which may be partitioned and may be assigned to different computers or users (see summary), and the provisioning takes place between the data array and various end users. Isfeld teaches of the need for scalable internetworking, which constitutes the participation of many users (abstract). As a result, there exists a need to regulate data stores of multiple users, and the use of Nolan's partition system resolves this issue. There is further motivation to combine teachings, as both inventions are from the same field of endeavor, which is the efficient routing of data in a scalable network, potentially being used by multiple users. Therefore, both inventions are directed to "precisely the same problem."

## *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanim Hossain whose telephone number is 571/272-3881. The examiner can normally be reached on 8:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Valencia Martin-Wallace can be reached on 571/272-6159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tanim Hossain
Patent Examiner
Art Unit 2145

ZARNI MAUNG
SUPERVISORY PATENT EXAMINER